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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,694	10/17/2003	Carl E. Altman	H0004484	2369

7590 11/02/2006

Honeywell International Inc.
15801 Woods Edge Road
Colonial Heights, VA 23834

EXAMINER	
DANIELS, MATTHEW J	
ART UNIT	PAPER NUMBER
1732	

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/688,694	ALTMAN, CARL E.	
	Examiner	Art Unit	
	Matthew J. Daniels	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 31-39 are pending in this case. All claims are new.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claims 34 and 39** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation of "about 2.1" in both claims is unsupported by the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 30-36** are rejected under under 35 U.S.C. 103(a) as obvious over Mizuno (USPN 5833070) in view of DeAntonis (USPN 4677017). **As to Claim 30**, Mizuno teaches a method for forming a film from a PCTFE polymer comprising:

a) extruding molten PCTFE polymer (Column 5)

b) cooling the PCTFE polymer to a temperature below its melting point to form a film, and because Mizuno teaches that the *oriented* film can have all crystallinities between 15% and 75%, it remains the Examiner's position that the oriented films of Mizuno exhibiting 15% to 75% crystallinity after orientation would have obviously had crystallinities falling within the claimed range of 20% to 30% prior to orientation.

c) mono- or uniaxially orienting the PCTFE film at a temperature of 50-85 C (within the claimed range of 75 to 200 F, equivalent to 23.9 to 93.3 C) at a stretch ratio of about 1.5:1 to 5:1 (6:7-9), producing a film having a thickness falling within the claimed range (stock thickness of 180 microns in Table 1, Col. 10, and a 3X draw ratio in 6:8-9).

e) whereby the resulting film has a water vapor transmission rate of less than about 232.5 g/meter squared/day (See Applicant's original Claim 1 and Mizuno's disclosure at 3:10-15 for % crystallinity, ratio shown in 3:17-18, and 4:59-67). In particular, see Mizuno's teaching of the formula (3:17-18) that B/(100-A) is less than or equal to 3.0. By the Examiner's calculation, Mizuno's teaching of A (% crystallinity) being 15 to 75% provides the following teachings about the permeability:

B/(100-A) is less than or equal to 3.0 (See Mizuno, 3:17-18)
A is percent crystallinity (3:13-14)
B is **mg**/square meter * day (3:14-15)
<u>When A = **15%** crystallinity</u> (3:13-14), then B/(100-15) is less than or equal to 3.0
Therefore, B is less than or equal to 3.0 * (100-15) = 3.0 * 85 = 255 **mg**/square meter day

Therefore, B is less than or equal to 0.255 **g**/square meter day, anticipating the resulting PCTFE water vapor transmission rate
B/(100-A) is less than or equal to 3.0 (See Mizuno, 3:17-18) A is percent crystallinity (3:13-14) B is **mg**/square meter * day (3:14-15) When A = **75%** crystallinity (3:13-14), then B/(100-75) is less than or equal to 3.0 Therefore, B is less than or equal to 3.0 * (100-75) = 3.0 * 25 = 75 **mg**/square meter day Therefore, B is less than or equal to 0.075 **g**/square meter day, anticipating the resulting PCTFE water vapor transmission rate

Thus, the claimed result still falls within the claimed result range.

Mizuno appears to be silent to the following aspects of the invention:

a) a casting roll maintained at 100 to 175 F

c) slow draw roll having a temperature of *about* 75 to *about* 200 F and the fast draw roll having a temperature in the range of *about* 200 and 240 F.

d) collecting the oriented film

Nevertheless, these aspects would have been prima facie obvious over DeAntonis, who teaches the following:

a) a casting roll maintained at 100 to 175 F (7:40)

c) DeAntonis teaches that the film should be subjected to a slow stretch at 235 F (9:14) which is about 200 F, and a fast stretch roll which is at 235 F (9:15). Alternatively, it would have been obvious to optimize the roll temperatures for the particular material being processed in order to

avoid delaminating or fibrillating (5:37-39 and 5:44) and to improve the clarity in a CTFE film (8:45 and 9:24).

d) it is conventional to collect a film after orientation in order to transport the film.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of DeAntonis into that of Mizuno (a) in order to produce a clear film having a uniform appearance (DeAntonis, 9:24-26), (b) to make the process of Mizuno continuous and efficient by the use of DeAntonis' rollers, and (c) because Mizuno suggests that the process is applicable to a wide variety of chlorotrifluoroethylene polymers including an ethyle-based chlorotrifluoroethylene (4:45) which appears to be what DeAntonis provides (6:13).

As to Claims 31 and 32: See 4:41-42. **As to Claims 33 and 34**, see 6:9. In particular, note that *about* 2.5:1 is substantially the same as the 3:1 taught by Mizuno. **As to Claim 35**, see DeAntonis' preheat roll of 240 F (9:14). **As to Claim 36**, see Mizuno's stock thickness of 180 microns in Table 1, Col. 10, and a 3X draw ratio in 6:8-9, which would produce a resulting thickness after drawing of about 60 microns, substantially the same as the claimed *about* 2 mils, which is equivalent to 50.8 microns.

4. **Claims 37-39** are rejected under under 35 U.S.C. 103(a) as obvious over Mizuno (USPN 5833070) in view of DeAntonis (USPN 4677017). **As to Claim 37**, Mizuno teaches a method for forming a film from a PCTFE polymer comprising:

a) extruding molten PCTFE polymer (Column 5)

b) cooling the PCTFE polymer to a temperature below its melting point to form a film, and because Mizuno teaches that the *oriented* film can have all crystallinities between 15% and 75% (4:53-58), it remains the Examiner's position that the oriented films of Mizuno exhibiting 15% to 75% crystallinity after orientation would have obviously had crystallinities falling within the claimed range of 20% to 30% prior to orientation.

c) without winding the film (Mizuno provides no teaching of winding in cols. 5 and 6), stretching the PCTFE film at a temperature of 50-85 C (within the claimed range of 75 to 200 F, equivalent to 23.9 to 93.3 C) at a stretch ratio of about 1.5:1 to 5:1 (6:7-9), producing a film having a thickness falling within the claimed range (stock thickness of 180 microns in Table 1, Col. 10, and a 3X draw ratio in 6:8-9).

e) whereby the resulting film has a water vapor transmission rate of less than about 232.5 g/meter squared/day (See Applicant's original Claim 1 and Mizuno's disclosure at 3:10-15 for % crystallinity, ratio shown in 3:17-18, and 4:59-67). In particular, see Mizuno's teaching of the formula (3:17-18) that B/(100-A) is less than or equal to 3.0. By the Examiner's calculation, Mizuno's teaching of A (% crystallinity) being 15 to 75% provides the following teachings about the permeability:

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When A = **15%** crystallinity (3:13-14), then B/(100-15) is less than or equal to 3.0
Therefore, B is less than or equal to 3.0 * (100-15) = 3.0 * 85 = 255 **mg**/square meter day

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Thus, the claimed result still falls within the claimed result range.

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avoid delaminating or fibrillating (5:37-39 and 5:44) and to improve the clarity in a CTFE film (8:45 and 9:24).

d) it is conventional to collect a film after orientation in order to transport the film.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of DeAntonis into that of Mizuno (a) in order to produce a clear film having a uniform appearance (DeAntonis, 9:24-26), (b) to make the process of Mizuno continuous and efficient by the use of DeAntonis' rollers, and (c) because Mizuno suggests that the process is applicable to a wide variety of chlorotrifluoroethylene polymers including an ethyle-based chlorotrifluoroethylene (4:45) which appears to be what DeAntonis provides (6:13).

As to Claims 38 and 39, see 6:9. In particular, note that *about* 2.5:1 is substantially the same as the 3:1 taught by Mizuno.

Response to Arguments

5. Applicant's arguments filed 25 July 2006 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

a) Applicants submit that the starting point of any rejection should be properly be based on USPN 4544721 to Levy which discloses that prior to stretching, a film of PCTFE needs to be substantially amorphous. This is in contradistinction to the claimed invention. This evidentiary reference suggests that the prior art considered in its entirety teaches away from the claims. In the Gore case, it was held that the invention was not obvious in light of disclosures in the prior art that a polypropylene should have reduced crystallinity prior to stretching (making it analogous to this case).

b) The resin melt flow rate and molecular weight are different and undesirable.

c) Mizuno states that a cooling drum is used at a temperature of 25 C, biaxially stretched at 9:1, and since it is recognized that stretching increases the crystallinity, thus it is clear that the starting film must have a crystallinity much lower than 18%.

d) Furthermore, it is not seen where Mizuno provides the claimed casting roll temperature, monoaxial orientation, stretch rolls, the claimed thickness, or the claimed water vapor transmission rate.

e) Mizuno uses a 90% RH (relative humidity), as opposed to the more stringent 100% RH.

f) It is not seen how Choy and Khanna are properly combinable with Mizuno, and there is no suggestion to do so. Choy and Khanna are scientific studies which include discussions of crystallinity of PCTFE resins.

g) DeAntonis does not teach PCTFE films, nor the crystallinity claimed.

h) The materials on which a process is carried out must be accorded weight. (Citation to *Ex parte Leonard*). The proper question is whether the process steps claimed are different from the prior art, and whether such differences are nonobvious over the prior art.

i) The citation to In re Dinot is inapposite the present situation. Applicant is claiming an in-line process where the film is continuously made and then continuously stretched. This is in distinction to a process where the film is moved to another line. Applicant's process frees up valuable space.

j) The stretch ratio of from about 2.1 to about 2.5:1 is not shown in Mizuno, and Mizuno requires at least 3 times.

6. These arguments are not persuasive for the following reasons:

a) Applicant's suggestion with regard to USPN 4544721 to Levy is noted. However, it should be noted that Levy is not the only reference before us, and that at least Choy (Polymer, Vol. 21, 1980) contains contradictory teachings of orienting a partially crystalline film. The Gore case is noted, but its teachings are not persuasive in view of the Choy reference which rebuts Applicant's scientific position.

Also note that Applicant's claim is to a particular crystallinity range *determined by x-ray diffraction*. If it is asserted that a particular crystallinity range is achieved, then the Examiner argues that the method in which the crystallinity is observed is redundant or unneeded, as the percent crystallinity is a property of the material at the instance of observation. By reciting that the crystallinity is within a range *when determined by x-ray diffraction*, the claim appears to assert that patentability is dependent on the skill, knowledge, techniques, and interpretation of the individual performing the testing.

b) The arguments are not commensurate with the scope of the claim which requires neither limitation.

c) The reference to Mizuno has been reconsidered, and it appears that Mizuno teaches a quench temperature of at most 100 C (6:4), which would suggest all temperatures below 100 C. Applicant's claimed quench temperature is fulfilled by this teaching, or alternatively by DeAntonis' roll quenching. Applicant's remarks appear to point out particular embodiments which the Examiner asserts are not representative of Mizuno's disclosure as a whole, which includes uniaxial (or monoaxial) stretching (6:8), and resulting crystallinities of between 15% and 75% (4:54) in the oriented film. Applicant's remarks appear to assert that because there is

no explicit disclosure of the claimed crystallinity, that Mizuno's disclosure is not anticipatory as to the crystallinity in the film prior to stretching. The Examiner respectfully disagrees, and asserts that Mizuno's broad teaching as to the resulting crystallinity suggests all intermediate crystallinities which result in Mizuno's disclosed range. Evidence may be useful in demonstrating that Mizuno did not and could not have started with crystallinities falling within the claimed range to produce oriented films having 15-75%, and more preferably 15-50% when softness is desired and 50-75% when moisture-proofness is desired (4:53-58).

d) The disclosure of Mizuno alone or in combination with DeAntonis provides disclosure or suggestion of the claimed elements. See the rejections above.

e) Applicant's remarks are drawn to Mizuno's testing procedures, and are not drawn to alleged differences in the implicit properties of Mizuno's film. If it is asserted that Mizuno's film does not meet the claimed transmission rate, that process limitation which produces the improvement should be claimed.

f) Choy and Khanna were provided as evidence to the quenching behavior of PCTFE and the resulting crystallinity. Because Mizuno quenches at temperatures of at most 100 C (6:2-5), such temperatures would implicitly provide the claimed crystallinities, and thus the additional references are believed to be unnecessary. However, the Examiner asserts that the references provide valid grounds for an argument of inherency of the claimed crystallinity range, and may be relied upon as evidentiary references. Their status as scientific studies does not detract from their teachings.

g) It should be noted that DeAntonis teaches chlorotrifluoroethylene films (6:19, for example), and while it is noted that DeAntonis teaches a co-polymer of CTFE, the instant claims are drawn

expressly to include other CTFE polymers (See instant Claim 32). The Examiner asserts that Mizuno teaches the crystallinity by inherency.

h) The Board noted in *Leonard* that "This is a totally new and surprising beneficial result...". *Ex parte Leonard and Brandes*, 187 USPQ 122, 123 (Bd. Pat. App. & Int. 1974). The unexpected benefit of the instant invention with regards to the starting material or the resulting product has not been established in such a way so as to be parallel to *Leonard.* Additionally, the Examiner asserts that a strong case for inherency of the claimed materials and partially crystalline microstructures has been presented over Mizuno alone, or in combination with Choy or Murthy, and that there is no evidence in this case to establish that the claimed material and crystallinity are not inherent in the prior art.

i) The Applicant's remarks against *Dinot* are noted, however, in view of the new rejections above, these arguments are believed to be moot. DeAntonis provides the claimed continuous process.

j) The value of 2.1 is new matter, and *about* 2.5:1 is substantially the same as the range disclosed by Mizuno of 3:1.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

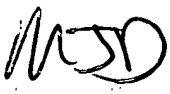
however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD 10/30/06



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